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BEFORE THE BOARD OF PATENT APPEALS  
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Paper No. 10

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Appellant(s): Septimiu E. Salcudean, Allan J. Kelley

AB1357  
C.A. Rowley  
For Appellant

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EXAMINER'S ANSWER

This is in response to appellant's brief on appeal  
filed 02-22-1994.

(1) *Status of claims.*

The statement of the status of claims contained in the brief  
is correct.

(2) *Status of Amendments After Final.*

The appellant's statement of the status of amendments after  
final rejection contained in the brief is correct.

(3) *Summary of invention.*

The summary of invention contained in the brief is correct.

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(4) *Issues.*

The appellant's statement of the issues in the brief is correct.

(5) *Grouping of claims.*

The rejection of claims 1-15 stand or fall together because appellant's brief does not include a statement that this groupings of claims does not stand or fall together.

(6) *Claims appealed.*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(7) *Prior Art of record.*

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

<u>Number</u>	<u>Name</u>	<u>Date</u>
4,692,756	Clark	09-08-1987
5,107,262	Cadoz et al	04-21-1992

(8) *New prior art.*

No new prior art has been applied in this examiner's answer.

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(9) *Grounds of rejection.*

The following ground(s) of rejection are applicable to the appealed claims.

1. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

2. Claims 1-15 are rejected under 35 U.S.C. § 103 as being unpatentable over Clark in view of Cadoz et al.

As to claim 1, Clark teaches a controller comprising: a base (see 12 in fig 3), a platform (see 11 in fig 3), means for mounting the platform for a range of movement in a plane in each of two different directions (see col 2 lines 11-27 and col 4 lines 15-45). Clark does not teach the first and second magnetic force applying means.

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However, Cadoz teaches the first magnetic force applying means including a first magnet means mounting on a base fixedly and a first cooperating magnetic force generating means (see 14,20 in fig 3 and col 3 lines 62 - col 4 line 50). Furthermore, Cadoz suggests the force applying means can be modified to simulate the behavior of a joystick with two degrees of freedom; see col 7 lines 1-9. Since the device of Clark is an input device with two degrees of freedom, it is obvious to consult Cadoz because the broad teachings of Cadoz suggest providing tactile feedback for an input device with one or more degrees of freedom. In particular, the two degrees of freedom referred to in the device of Clark has two different directions, it makes no difference in making the decision whether the teaching of Cadoz can be combined with the teaching of Clark as long as both of them deal with the operation with two degrees of freedom. Furthermore, since the two degrees of freedom movement of Clark is a movement on an **integral single platform** which moves in two different directions (which are in orthogonal relationship) instead of two keys that move in the same direction to emulate a two degrees of freedom device (i.e., joystick) as shown by Cadoz. It would have been obvious for one skilled in the art to have applied the broad teaching of Cadoz to Clark that certain modifications in the structure arrangements of Clark would have had to be made. Since Clark uses an **integral single**

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**platform** which moves in two orthogonal directions, Clark would have had a first magnetic force applying means which includes a first magnet means mounting fixedly on the base and a first cooperating magnetic force generating means (first coil means) for a first direction movement (i.e., one orthogonal direction), and also including a second magnetic force applying means which includes a second magnet means mounting on the base fixedly and a second cooperating magnetic force generating means (second coil means) for the movement in a second direction which is orthogonal to the first direction, so that tactile feedback can be provided to users when using the input device of Clark. Again due to the **single platform arrangement of Clark**, it is also obvious that the device of Clark as modified by Cadoz would have the first and second coil means mounted on the same platform and having a fixed relationship to each other so that constant feedback can be provided to users because providing a constant feedback to users' hands in both directional movements is a well known practice in designing input devices. In this particular instance, the two directional movements are related (orthogonal) to each other (instead of independent with each other) and the **movements are movements on a single platform**, making the coils fixed to each other is the key factor to provide constant feedback to a user's hand in both orthogonal directions.

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As to claim 2, the device of Clark as modified meets the limitation since a second magnetic force applying means has to be arranged in an orthogonal direction relative to the first direction since two mutually perpendicular force being generated, two perpendicularly directed movements can be simulated.

As to claim 3, Clark teaches a sensing means (see fig 4a, 4b and col 5 lines 1-40).

As to claims 4-6, Clark teaches a sensor means for sensing the position of the platform (11) which comprises a transparent grid (21,22), a light source (27), and a detector means (see 23/24, 25/26 and col 5 line 1 - col 6 line 39).

As to claims 7,9,10,12,13 and 15, the device of Clark as modified meets the limitations set forth.

As to claims 8,11 and 14, eventhough Cadoz does not mention the projected area of the field generated by the magnet means is constant, it is obvious that the device of Clark modified by Cadoz has to make the projected area of the magnetic field constant so that a constant magnetic force can be generated which provides constant tactile feedback to the operators , i.e., it is a well known practice to provide users constant feedback in designing input device with tactile feedback.

3. Claims 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in

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independent form including all of the limitations of the base claim and any intervening claims.

(10) *New ground of rejection.*

This Examiner's Answer does not contain any new ground of rejection.

(11) *Response to argument.*

One page 3 second paragraph from the bottom of the page, the appellant clearly agrees that the use of a platform movable in two directions in gantry structure is well known, such as the one taught by Clark.

On page 4 the second full paragraph, the appellant argues that there is nothing in the patent to Clark that would suggest combining its teachings with those of Cadoz et al. Examiner disagrees with appellant's opinion. The broad teachings of Cadoz et al suggest that resistive feedback can be provided to users, by magnetic force applying means, on some input devices including input devices (i.e. joystick) with two degrees of freedom as pointed out by Cadoz col 7 lines 4-6. Clark broadly teaches an input device with two degrees of freedom, thus it would have been obvious to apply the teaching of Cadoz to the device of Clark so that resistive feedback can be provided to users as suggested by Cadoz.

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On page 4 lines 19-22, the appellant argues that since neither Clark nor Cadoz teaches coils mounted on a platform and there is no fixed relationship between the coils of the Cadoz et al device, and thus render the unobviousness of the combined teaching of Clark and Cadoz et al. Examiner would like to point out that the appellant's arguments are all based on only each individual narrow teaching instead of the combined broad teaching as a whole. The narrow teaching of Cadoz et al is based on one selected specific embodiment shown as an example for the device of Cadoz et al, which is particularly directed to an input device which comprises a plurality of individual keys which are independent to each other, wherein each key manipulates independent operations with only one degree of freedom. In this particular instance, it is true that no coils needed to be fixed relative to each other since the feedback force generated for each key does not depend on or influence each other and no coils needed to be mounted on a platform (no platform is needed in this case since no related movements are created for each independent keys). However, **the broad teaching of Cadoz is not only limited to the particular example which demonstrates the narrow teaching.** The broad teaching of Cadoz is that **the arrangement can be made for an input device with two degree of freedom** so that tactile feedback can also be provided to users. Although the situation presented in the device of Clark is not identical to the example



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shown in the narrow teaching of Cadoz et al, the broad teaching of Cadoz is applicable to the device of Clark since the device of Clark is a two degrees of freedom device. The device of Clark has one input key which manipulates related operations (i.e., movements in orthogonal x and y directions) with two degree of freedom. It is emphasized here that **it is the broad teaching of Cadoz being applied to the teaching of Clark instead of the narrow teaching of a particular embodiment of Cadoz**; in other words, it is **not the exact structure arrangement** (shown in the particular embodiment of Cadoz as discussed above) **directly (without any modification) used to modify the device of Clark**, it is the broad teaching of Cadoz that is used as a guidance in the modification of the device of Clark. Clearly in this particular instance where the device of Clark is modified to provide tactile feedback to movements on one **single movable platform in two orthogonal directions**, it would have been obvious for one skilled in the art to mount the coils on the platform in a fixed relationship to each other so that constant feedback can be provided to users, and in this instance, making the coils fixed to each other on the platform is a key factor to derive constant feedback **in both directions on a single platform**, and would be the only way the device of Clark could have been modified to work properly.

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On page 4 the eighth line from the bottom of the page to page 5, the appellant listed ten parts that are components of claim 1 and again argues that the parts which require mounting the coils on a platform and making the coils fixed to each other would not be found in the individual teaching of Cadoz or Clark. Examiner disagrees with the appellant's opinion. All the parts recited in claim 1 have been addressed in the rejection above and clearly the device of Clark as modified by the teaching of Cadoz has all the components as recited in claim 1.

On page 6 the third paragraph, the appellant argues that examiner misinterpreted a statement of Cadoz "In case where it is the rod that actuates the key, it can be used for simulating the behavior of a joystick with two degrees of freedom". The appellant insists that since the two degrees of freedom in the particular embodiments shown by Cadoz et al is referring to two keys moving in the same direction to emulate a two degrees of freedom device (i.e., joystick), thus the teaching of Cadoz can not be applied to the device of Clark because the device of Clark is referring to a single platform moving two different directions to emulate a two degrees of freedom device. Examiner disagrees with applicant's opinion. First, examiner would like to clarify that no attempt was made to interpret "two degrees of freedom" in the statement of Cadoz as "two degrees of freedom in two different directions" for the embodiment shown by Cadoz. Second,

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since the device of Clark has two degrees of freedom, it is obvious to consult Cadoz et al because the broad teachings of Cadoz suggest providing tactile feedback for an input device with one or more degrees of freedom. It makes no difference whether the two degrees of freedom is having one direction or two different directions; the bottom line is that both of them deal with movements with two degrees of freedom and the combined teaching would fairly suggest to one of ordinary skilled in the art.

On page 7 the forth paragraph, the appellant argues that the device of Clark as modified by Cadoz would have to include some lever mechanism. It is not clear based on what such a conclusion is made and even if this is the case the claim does not preclude these parts anyway.

On page 8, the appellant again argues the same issues (paragraph a - paragraph d) as addressed by the examiner in the above paragraphs. Examiner also likes to emphasize again that the appellant's arguments in paragraph d is solely based on how to apply the narrow teaching of the particular embodiment as shown by Cadoz (without any modification) to the device of Clark. Examiner contends when one ordinary skilled in the art apply the broad teaching of Cadoz to the device of Clark, certain modifications in the structure arrangements of Clark would have had to be made (as described in previous paragraphs) and only

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with such arrangements the device of Clark could have been modified to work properly.

On page 8 the second full paragraph from the bottom the page, the appellant cites case laws to again argues that the prior art provides no suggestion of the desirability of making the invention. Examiners likes to stress that the broad teachings of Cadoz suggest that resistive feedback can be provided to users by magnetic force applying means on some input devices including input devices such as joy stick type devices with two degrees of freedom as pointed out by Cadoz col 7 lines 4-6. Clark broadly teaches an input device with two degrees of freedom, thus it would have been obvious to apply the teachings of Cadoz to the device of Clark so that resistive feedback can be provided to users as suggested by Cadoz.

On page 8 the last full paragraph from the bottom of the page, the appellant argues that the combined teaching of the prior art would not solve the same problem as the appellant's claimed invention. Examiner disagrees with the appellant's opinion. The device of Clark teaches an input device with two degrees of freedom. The device Clark would suffer the problem which is that the users can not derive any tactile feedback during the operation. Cadoz suggests that tactile feedback can be provided to users when operating input devices with one or more degrees of freedom (i.e., joystick type device) by magnetic force

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applying means. Clearly the device of Clark as modified by Cadoz would solve the same problem recognized by Cadoz and the appellant, i.e., tactile feedback can be provided to users during operation.

**Conclusion:** The two main issues raised by the appellant are whether there are any suggestions in the prior art to combine the teachings of the references to derive the appellant's claimed invention and whether the combined teaching renders the appellant's claimed invention obvious. Regarding the first issue, clearly the reference to Cadoz suggests that tactile feedback can be provided to users by magnetic force applying means on input devices with one or more degrees of freedom ,such as a joy stick type device, as pointed out by Cadoz col 7 lines 4-6. Clark broadly teaches an input device with two degrees of freedom, thus it would have been obvious to apply the teaching of Cadoz to the device of Clark so that tactile feedback can be provided to users as suggested by Cadoz. Regarding the second issue, when one ordinary skilled in the art applies the broad teaching of Cadoz to the device of Clark, certain modifications in the structure arrangements of Clark would have had to be made due to the fact that the two degrees of freedom movement in the device of Clark is a movement on an integral single platform which moves in two different directions instead of two keys moving in the same direction to emulate a two degrees of freedom device (i.e.,

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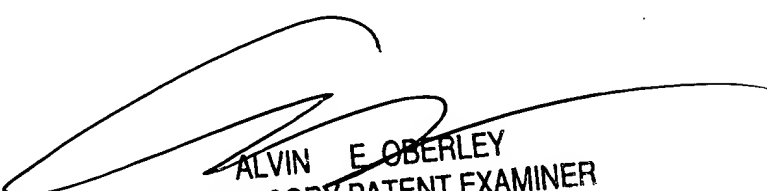
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joystick) as shown by Cadoz. These modifications in the structure arrangements would be the only ways that the device of Clark could have been made to work properly( see the discussion above). Clearly the combined teachings of Cadoz and Clark render the appellant's claimed invention obvious.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



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